SR 520 Pontoon Construction
Design-Build Project

Environmental Compliance Plan
Volume II

Appendix H.2
Water Quality Monitoring Plan
for NPDES Sand and Gravel General Permit
During MOTHBALL Phase

Prepared By:

Kiewit-General, A Joint Venture

Prepared For:

Washington State Department of Transportation

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1.0 Introduction

The Water Quality Monitoring Plan (WQMP) provided monitoring guidelines for tracking the performance of the Erosion and Sediment Control Plan (ESCP) used during the Operations Phase of the State Route (SR) 520 Pontoon Construction Design-Build Project (Project), and to ensure that discharged water meets requirements of the NPDES Sand and Gravel General Permit (SGGP). The best management practices (BMPs) used to control sediment and erosion are described in detail in the ESCP and are compliant with the Washington State Department of Transportation's (WSDOT) Highway Runoff Manual (HRM; WSDOT 2008). During the site's Mothball Phase, water quality monitoring is still required as described in the NPDES Sand and Gravel Permit, and this WQMP has been revised to support Kiewit-General's site management efforts until the NPDES SGGP is transferred to WSDOT. This permit transfer occurred on September 2, 2015.

It is important to note that this is not a "stand-alone" plan, and that the site's environmental management personnel must reference several other interrelated environmental plans in order to successfully implement all required compliance efforts. While this plan is provided as an appendix to the site's Environmental Compliance Plan (ECP), it is also identified as one of four distinct plans that comprise the "Site Management Plan", as defined by the SGGP condition S.5. Per this permit condition, the Site Management Plan (SMP) must include the following plans:

- Erosion and Sediment Control Plan
- Water Quality Monitoring Plan
- Stormwater Pollution Prevention Plan
- Spill Control Plan

All of the above listed plans are included as appendices to this site's Environmental Compliance Plan (ECP).

All projects with greater than 1 acre of soil disturbance that may discharge construction storm water to waters of the State are required to obtain a National Pollutant Discharge Elimination System (NPDES) Construction Storm Water General Permit from the Washington State Department of Ecology (Ecology). A Section 402 NPDES Construction Storm Water General Permit (CSGP) was obtained by K-G prior to the start of construction and the monitoring of construction-related storm water discharges - followed the water quality criteria established by that permit (refer to the Construction

Storm Water General Permit Water Quality Monitoring Plan). In addition, K-G obtained a Section 402 NPDES SGGP for concrete production process water during operation of the concrete batch plant and fabrication of the pontoons. This Water Quality Monitoring Plan is applicable only to sampling and monitoring required under the NPDES SGGP and ensures that surface and ground water discharges from the facility's uplands and pontoon construction activities are compliant with the permit requirements. However, because the concrete batch plant was in operation prior to completion of the site development, there was an overlap between the two NPDES permits. As of January 2nd, 2014, having received confirmation from the Department of Ecology, the CSGP was terminated, and this site is now operating entirely under the SGGP.

1.1 Industrial Activities at the Site

Permit condition number S5.B.1(a) of the SGGP requires that this WQMP identify all the industrial activities at the site. The casting basin site has gone through three primary phases of development and operations, during which storm water, process water, and dewatering water will be handled in accordance with applicable regulations. These three phases are as follows:

- **Casting Basin Construction:** During construction of the facility, storm water and dewatering water was managed in accordance with the NPDES CSGP and WSDOT HRM standards. Site construction is now complete, and the CSGP has been terminated.
- **Pontoon Fabrication:** During operation of the casting facility for pontoon fabrication and associated concrete batch plant, process water, storm water, and dewatering water was managed in accordance with the NPDES SGGP and WSDOT HRM standards. A State Waste Discharge Permit was acquired to allow contingency discharge of process water to the City of Aberdeen Wastewater Treatment Plant. However, this permit has been terminated as of July 29, 2015.
- **Site Closure Following Pontoon Fabrication:** Following completion of pontoon fabrication, Kiewit-General began demobilizing from the site. Activities included demolition of temporary structures, removal of equipment and temporary facilities, repairs of permanent infrastructure, cleaning of ponds and drainage systems, removal of temporary BMP devices, hydroseeding, etc. The site transitioned to WSDOT to maintain prior to future use or decommissioning. The NPDES SGGP was transferred to WSDOT September 2, 2015, and its conditions will remain in effect during this Mothball phase.

Industrial activities at the site during the NPDES SGGP duration included concrete batch plant operations (NAICS Code 327320), manufacturing of concrete pontoons (NAICS Codes 327332, 327390, and 327999), heavy equipment fueling and maintenance, and vehicle fueling and maintenance. NAICS Code 212321 (Construction Sand and Gravel Mining) applies for the groundwater dewatering that continuously occurs beneath the casting basin.

1.2 Kiewit-General Environmental Compliance Team

Until the NPDES SGGP Permit is transferred over to WSDOT, the environmental compliance team responsible for water quality monitoring will consist of trained Environmental Personnel (EP) who are Certified Erosion and Sediment Control Leads (CESCL), as required by the Department of Ecology. This team reports to Kiewit-General's Environmental Compliance Manager (ECM), who is also a CESCL. The CESCL team will include one individual who will function as Kiewit-General's Environmental Compliance Lead (ECL). Either the ECL or the ECM will assess BMPs during weekly inspections, as well as within 24-hours after any storm event of greater than 0.5 inches per 24-hour period. The site's Environmental Compliance Plan (ECP) identifies the individuals currently assigned to the above described team positions, as well as the team duties and responsibilities.

2.0 Sampling and Testing Equipment

The following equipment shall be used for water quality sampling. All meters shall be calibrated per manufacturers' guidelines using approved calibration standards. Additional calibrations will be performed immediately if data appears suspect.

Conditions/Procedures	Sampling Equipment
Turbidity	Hach Model 2100 portable turbidimeter or LaMotte Model 2020 turbidimeter, or equivalent. The north pond acid neutralization treatment system includes an inline meter selected through the vendor.
pH and Temperature	Oakton CON10 pH meter,or equivalent. The acid neutralization system at the north pond includes an inline meter selected through the vendor.
Rain Measurement	This Pontoon Construction Project refers to precipitation data available on the internet from NOAA and from Weather Underground (an electronic rain gauge was added to the project site in June 2014; the gauge was removed in July of 2015 upon

	Project Physical Completion
Field Observations	Weekly ESC inspection checklists.
Total Dissolved Solids And Total Suspended Solids	Discharged water is sampled by Kiewit-General and delivered to an Ecology approved laboratory for TDS and TSS analysis. Chain-of-Custody sheets are on file for each sample tested.

3.0 Sampling Information

The following information will be recorded on the Water Quality Summary Report Form (Attachment A) for each sampling event:

- Date, time, and location of the sample.
- Project name and contract number.
- Names of personnel who collected the sample.
- Method of sample collection.
- Amount of rainfall in last 24 hours.
- Field conditions (weather, temperature, pertinent construction activities, any prior disturbance of the water body, etc.).
- Any observation of oil sheen.
- Analytical techniques and testing results for measured parameters.
- Date and time of the last calibration of monitoring equipment.
- Notes summarizing critical activities, unusual conditions, corrective actions, whether or not photographs were taken as supporting documentation, etc.

4.0 NPDES Sand and Gravel General Permit Requirements and Procedures for Discharge during Mothball Phase

4.1 Sample Locations

Until the NPDES SGGP is transferred to WSDOT, water samples will be taken by the Kiewit-General's Environmental Compliance Team members having CESCL certifications, at all points where water is discharged offsite or discharged to the ground or to surface water. Water quality monitoring is required for each outfall (Points of Compliance, POC)

Under the NPDES Sand & Gravel General Permit, the Points of Compliance (POCs) are at all points where water is discharged offsite or to the ground. Site discharge samples will be collected at each outfall before the water enters the receiving body of water. The POC locations are provided in Figure 1.

All water quality forms, maps, and pictures have been kept on file at Kiewit-General's ECM's office along with copies of the K-G's inspection reports. The files were maintained to document BMP inspections, maintenance, discharge, and monitoring activities and will be kept onsite at all times to provide easy access for staff and Ecology during site inspections. NPDES permit violations were immediately reported to the ECM, who notified WSDOT, and reported to Ecology. K-G's ECM will also determined ECAP triggers, and provided follow-up ECAP incident reports to WSDOT. WSDOT also implemented the Environmental Compliance Assurance Procedure (ECAP) as appropriate (Appendix J to the Environmental Compliance Plan).

4.2 Applicable Parameters

Parameter	**Frequency**	**Criteria**
Discharges to Surface Water		
pH	Monthly	6.5–8.5
Turbidity	Twice each month	Monthly average of 50 NTUs, 50 NTUs maximum daily
Total Suspended Solids	Quarterly	40 mg/L
Oil Sheen	Daily when runoff occurs	• Visible sheen • Monthly inspection of oil-water separator required
Discharges to Ground (for NAICS Codes 327320, 327332, 327390, and 327999)		
pH	Monthly	6.5–8.5
Oil Sheen	Daily when runoff occurs	• Visible sheen • Monthly inspection of oil-water separator required
Total Dissolved Solids	Monthly	500 mg/L
NOTE: for Groundwater Dewatering Water discharged to the ground for NAICS activity 212321, only monitoring for oil sheen is required.		

Abbreviation:
NTU Nephelometric Turbidity Unit

The following guidelines will help ensure compliance with the Section 402 NPDES SGGP:

1. **Review Important Project Information and Assess Risk**

   A review of project maps, project definitions, and schedules was performed to better understand when and where construction activities had the greatest potential to impact specific water quality parameters.

2. **Establish Sampling Locations**

   Site discharge samples will be taken at each outfall before the water enters the receiving body of water, when and where it is safe to do so. Alternatively, water may be sampled at the manhole structure connecting to the last uninterrupted discharge pipe to the outfall. In cases where water directly discharges from the site through a traditional storm water treatment BMP (such as a pond or biofiltration swale), sampling will occur at the outlet of the BMP. Samples will be evaluated for turbidity and pH value exceedances. POC locations are provided in **Figure 1** of this plan, which shall be updated as the POC locations change.

3. **Establish Turbidity Sampling Schedule**

   To satisfy NPDES SGGP requirements, samples will be collected at least twice every calendar month. Discharges to surface waters include, but are not limited to, natural offsite surface flow; draining of ponds, vaults, or footings; and flushing of water lines. If the sample or visual observations indicate the potential for a water quality violation, contingency sampling will be performed (described below). Samples will be representative of the flow and characteristics of the discharge. The Water Quality Summary Report Form that will be used when sampling is included in Attachment A.

   As required, samples will be collected within 24 hours of a discharge or rain event. Sampling is not required when there is no discharge during the calendar week. Samples will not be collected outside of normal working hours or during unsafe conditions. If a sample is not collected according to the requirements outlined in the water quality permits and this Monitoring Plan, or if no sample is collected, a note shall be made with a brief description of why a sample was not properly collected or not collected at all. However, this shall only occur in extreme situations, as every attempt shall be made to properly collect a sample when the conditions do not pose a significant hazard to human health.

4. **Establish pH Sampling Schedule**

   Sampling for pH will be under the NPDES SGGP for all Points-of-Compliance (POC) identified as discharging Process Water or Stormwater Type 3.

pH Values

a) The range for pH is 6.5 (minimum) to 8.5 (maximum) standard units. Any time sampling indicates that pH is out of this range:

   i. The high pH water (over 8.5) cannot enter the storm sewer system or waters of the State, and

   ii. If necessary, the high pH is adjusted or neutralized using hydrochloric acid (HCl), sulfuric acid, or "dry ice" (carbon dioxide).

   iii. for low pH water (below 6.5), the addition of soil amending products such as lime may be used to treat the water prior to discharge (see Appendix E for more information)

5. Establish Schedule for Total Suspended Solids Sampling

Sampling for total suspended solids (TSS) is required for concrete process water discharging to surface water. TSS sampling is required quarterly and only for process water under the NPDES SGGP. Type 2 and Type 3 storm water discharges do not require TSS sampling.

TSS sampling requires certified laboratory analysis. Grab samples from the process water discharge are collected in jars and transported to an EPA certified laboratory.

During Mothball Phase, WSDOT site management may elect to coordinate with Ecology to revise the process water outfalls such that they are no longer classified as process water, but rather Stormwater Type 3. This would eliminate the need to test for TSS.

6. Establish Schedule for Oil Sheen Observations

Daily observations for oil sheen are required under the NPDES SGGP. Observations will be conducted as observations of surface water at the site, including the wet ponds, process treatment ponds, and at the ground water discharge sampling location.

The discharge of sheen or petroleum product to surface or groundwater is a violation and must be reported as such. The occurrence of a visible sheen on site is not a violation as long as the site management complies with the following:

a) Implements preventive BMPs and corrects the problem in a timely manner,

b) Reports the occurrence on the inspection report, and

c) Explains the cause and describes the immediate solution and future preventive practices in the inspection report and the SWPPP.

During Mothball Phase, risk of discharge of oil sheens or petroleum products will be minimal, since there are no stored products nor related activities.

7. Contingency Sampling

The WSDOT HRM requires contingency sampling if visual observations suggest that turbidity or pH permit limit values may be exceeded (WSDOT 2008). If monitoring confirms that water quality is out of compliance with permit limit values, the activity causing the problem will immediately be modified or stopped. Hourly monitoring will then be conducted until turbidity and pH water quality standards are met for two consecutive sample periods. High pH water (over 8.5) will not be allowed to discharge from the site. Once compliance is achieved (turbidity less than 50 NTU), WSDOT's ECM will be notified if two or more contingency samples are over 50 NTUs or outside the acceptable pH range (6.5 to 8.5).

Sampling Procedures

The following sampling procedures are required under the NPDES SGGP:

1. Samples will be collected from the discharge points as noted in the Site Operations Monitoring Map (Figure 1 of this plan).
2. All samples that are collected will be representative of the flow and characteristics of the discharge. A sampling bottle will be filled and emptied at least once prior to collecting samples at each location to rinse out previous samples. The sample bottle will be inverted to resuspend particulates prior to turbidity testing.
3. Samples will be visually observed for the presence of suspended sediment, turbidity, discoloration, and oil sheen.
4. All pH testing will occur promptly upon obtaining the water sample, because temperature affects pH.
5. Manufacturers' recommendations for equipment operations will be followed.

4.3 State Waste Discharge Permit

A State Waste Discharge Permit (ST 6223) was obtained to allow process water discharge to the City of Aberdeen WTTP adjacent to the site. However, as of July 29, 2015, this permit has been terminated.

5.0 Office Data Recording and Analysis

To comply with reporting procedures outlined in the NPDES SGGP, Kiewit-General has submitted a Discharge Monitoring Report (DMR) to the Water Quality Permit Coordinator at Ecology's Southwest Regional Office on a quarterly basis by the date indicated in the table below. Kiewit-General submitted to Ecology the DMR for 2015's 2nd Quarter, which ended June 30th. As of September 2, 2015, the NPDES SGGP was transferred to WSDOT; Kieiwt-General will provide WSDOT water quality discharge data obtained for the month of July, and WSDOT will use this information to prepare the DMR for the 3rd Quarter, which ends September 30th. As of July 31, 2015, all data for water quality monitoring shall be compiled by WSDOT. If discharge(s) occurred during normal working hours, and during safe conditions, but no sample was collected during the entire quarter, the Permittee shall submit a DMR form indicating that "no sample was obtained." If no discharge(s) occurred during the entire quarter or the discharges during the quarter occurred outside normal working hours or during unsafe conditions, the Permittee shall submit a DMR indicating "no discharge" or "not operational," as applicable. The DMR will be submitted whether or not there was a discharge. If a Permittee has suspended sampling for a parameter due to consistent attainment, the Permittee shall submit a DMR and indicate that it has achieved Consistent Attainment for that parameter.

The monitoring period began on the date that the NPDES SGGP coverage begans. Kiewit-General has copied WSDOT when reporting NPDES SGGP water quality monitoring data to Ecology. These reports were submitted in hard copy to Ecology via U.S. Postal Service, to the address provided in the DMR form.

As per SGGP Permit condition S6.A.3, the quarterly DMRs are due to Ecology as follows:

Discharge Monitoring Period	**DMR due to Ecology on or before:**
October, November, December	January 30
January, February, March	April 30
April, May, June	July 30

July, August, September	October 30

Copies of the Discharge Monitoring Reports were provided to WSDOT via Centric for WSDOT pursuant to contract requirement RFP 2.8.5.2.

5.1 Waste Discharge Permit Reporting

The State Waste Discharge Permit also required regular reporting in the form of DMRs. The DMR form was submitted monthly, whether discharging or not, and was submitted to Ecology in hard copy via U.S. Postal Service. The DMR is provided in Attachment C. During the Mothball Phase, this DMR will not be required because the permit was terminated as of July 29, 2015.

6.0 Compliance and ECAP Procedures

If a turbidity or pH sample exceeds the limits established in the NPDES SGGP, or if there are other permit violations, the site operator will immediately notify WSDOT management. In accordance with the NPDES SGGP, if the site operator is out of compliance for the NPDES SGGP terms, conditions, or discharge limits, the site operator must stop or correct the unauthorized discharge, notify Ecology's Southwest Regional NPDES SGGP Manager in person or by phone within 24 hours, and submit a detailed report to Ecology outlining the exceedance or non-compliance within 30 days. WSDOT's Contact names and phone numbers are listed in Table 1 on this plan.

7.0 References

Washington State Department of Transportation (WSDOT). 2008. *Highway Runoff Manual*. M 31-16.01. Environmental and Engineering Programs Design Office. Olympia, Washington. June.